MATERIAL SAFETY DATA SHEET

SRM Supplier: National Institute of Standards and Technology
Standard Reference Materials Program
Bldg. 202 Rm. 211
Gaithersburg, Maryland 20899

SRM Numbers: 2570-2575, 2579a
MSDS Numbers: 2570-2575, 2579a
SRM Name: Lead Paint Films for Portable X-Ray Fluorescence Analyzers
Date of Issue: October 1992
Date of Revision: 29 November 1999

MSDS Coordinator: Joylene W.L. Thomas
Phone: (301) 975-6776
ChemTrec: 1-800-424-9300

E-mail: SRMMSDS@nist.gov
FAX: (301) 926-4751

SECTION I. MATERIAL IDENTIFICATION

Material Name: Lead Paint Film for Portable X-Ray Fluorescence Analyzers

Description: SRM 2579a consists of a set of six 7.6 cm x 10.2 cm polyester sheets (SRMs 2570 - 2575), five of which (SRMs 2571 - 2575), are coated with a single uniform paint layer. Each paint layer has a different lead content which is color coded. The paint layer and the polyester sheet are 0.04 mm and 0.2 mm thick respectively. The sixth sheet (SRM 2570) is coated with a lead free lacquer on polyester sheet of the same thickness as the lead paint samples and is included as a blank. All sheets are coated with a clear, thin, plastic laminate to protect the paint or lacquer layer from abrasion. Known concentrations of lead chromate pigment were dispersed in a commercial paint vehicle to prepare the lead paints.

> **NOTE:** As long as this SRM is not modified the lead chromate and/or lead contained in the paint is not hazardous because this material is overcoated with a clear, thin plastic laminate to protect the paint layer. **DO NOT remove this coating. Any damage to this coating may disperse dust particles containing lead into the air.**

Other Designations: **Lead Chromate:** chromic acid, lead (2^+) salt; lead chromate (Vl); lead (Vl) chromate; chrome yellow; King's Yellow; Leipzig Yellow; Paris Yellow; plumbous chromate; natural crocoite; cologne yellow; lead chromium oxide

Name	Chemical Formula	CAS Registration Number
Lead	Pb	7439-92-1
Lead Chromate	$PbCrO_4$	7758-97-6

DOT Classification: Not regulated by DOT

Manufacturer/ Supplier: Available from a number of suppliers*

***The paint layers on polyester sheets were prepared by an automated coating process by Color Communication, Poughkeepsie, NY.

SECTION II. HAZARDOUS INGREDIENTS

SRMs	Nominal Concentration (mg/cm^2)		Limits and Toxicity Data
	Lead (from lead chromate)	Lead Chromate	
SRM 2570	< 0.001	< 0.002	OSHA TLV-TWA: 50 $\mu g/m^3$ (as Pb) OSHA TWA Action Level (8 h): 30 $\mu g/m^3$ (as Pb) OSHA Ceiling: 0.1 mg/m^3 (as CrO_3) ACGIH TLV-TWA: 0.05 mgm^3 (as Pb); 0.012 mg /m^3 (as Cr) Human, Oral: LD_{LO}: 571 mg/kg (as Pb) Man, Oral: TD_{LO}: 214 mg/kg/4 weeks (as Pb) Mouse, Oral: LD_{50}: 1200 mg/kg (as $PbCrO_4$) Guinea Pig, Intraperitonial: LD_{75}156 mg/kg (as $PbCrO_4$)
SRM 2571	3.58	5.6	
SRM 2572	1.527	2.4	
SRM 2573	1.040	1.6	
SRM 2574	0.714	1.1	
SRM 2575	0.307	0.5	

SECTION III. PHYSICAL/CHEMICAL CHARACTERISTICS

Lead Chromate
Appearance and Odor: Yellow to yellow orange powder or monoclinic crystals
Relative Molecular Mass: 323.19
Density (at 15 °C): 6.12 g/cm^3
Boiling Point: Decomposes
Melting Point: 844 °C
Solubility in Water: 58 µg/L
Solubility in Other Compounds: Soluble in acids, fixed alkali hydroxides solutions, and dilute nitric acid. **Insoluble** in acetic acid and ammonia.

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

Flash Point: N/A

Autoignition Temperature: N/A

Flammability Limits in Air (Volume %): UPPER: N/A
LOWER: N/A

Extinguishing Media: Use regular dry chemical, carbon dioxide, water or regular foam.

Special Fire Procedures: Fire fighters should wear self-contained breathing apparatus with full facepiece and operated in pressure-demand or other positive pressure mode.

Unusual Fire and Explosion Hazards: Lead chromate is a negligible fire hazard.

SECTION V. REACTIVITY DATA

Stability: __X__ **Stable** ____ **Unstable**

Conditions to Avoid: Avoid heat and incompatible materials.

Incompatibility (Materials to Avoid): Lead chromate is incompatible with combustible materials, cyanides, and metals.

See Section IV: *Fire and Explosion Hazard Data*

Hazardous Decomposition or Byproducts: Toxic oxides of lead and chromium may be produced.

Hazardous Polymerization: _____ **Will Occur** __X__ **Will Not Occur**

SECTION VI. HEALTH HAZARD DATA

Route of Entry: __X__ **Inhalation** __X__ **Skin** __X__ **Ingestion**

Health Hazards (Acute and Chronic): Lead and Lead Chromate: This material may be harmful by inhalation, ingestion, or skin contact. Lead chromate is corrosive to skin and may cause skin lesions (chrome ulcers) which are painless but slow to heal and produce depressed scar tissue. Eye contact may cause irritation, tearing, and conjunctivitis. Particulate inhalation may cause coughing, nausea, metallic taste, and irritation of the respiratory tract. Absorption of large amounts of lead compounds may cause a metallic taste, thirst, burning sensation in the mouth and throat, salivation, abdominal pain with severe colic, vomiting, diarrhea, or shock. If absorption is sufficient, leg cramps, muscle weakness, and coma may occur. Other signs and symptoms of exposure include metal fume fever (an influenza-like illness), disorientation, tingling sensation, convulsions, or paralysis. Prolonged or repeated exposure to low levels of lead may result in an accumulation in body tissues and exert adverse effects on the blood, nervous system, heart, endocrine and immune systems, kidneys, and reproduction. Lead may also cause birth defects. Exposure to lead chromate may cause cancer.

Medical Conditions Generally Aggravated by Exposure: Blood disorders, nervous system disorders, gastrointestinal disorders, and respiratory disorders.

Listed as a Carcinogen/Potential Carcinogen:

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens	X*	
In the International Agency for Research on Cancer (IARC) Monographs	X**	
By the Occupational Safety and Health Administration (OSHA)		X

* The NTP classifies lead chromate a *Known to be a Human Carcinogen*.

** The IARC classifies lead and inorganic lead compounds as Group 2B: *Possibly Carcinogenic to Humans*. Chromium (Vl) compounds are classified as Group l: *Carcinogenic to Humans*.

EMERGENCY AND FIRST AID PROCEDURES:

Skin Contact: Remove contaminated shoes and clothing. Rinse affected area with large amounts of water followed by washing the area with soap and water. Obtain medical assistance if necessary.

Eye Contact: Immediately flush eyes, including under the eyelids, with copious amounts of water for at least 15 minutes. Obtain medical assistance if necessary.

Inhalation: If inhaled, remove the victim to fresh air. If breathing is difficult, give oxygen; if victim is not breathing, give artificial respiration. Obtain medical assistance.

Ingestion: If ingested, wash out mouth with water. **DO NOT** induce vomiting. Obtain medical assistance immediately.

TARGET ORGAN(S) OF ATTACK: Blood, heart, nervous system, endocrine system, respiratory system, immune system, and kidneys. This material is also a *teratogen* (causes fetal damage).

SECTION VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material Is Released or Spilled: Evacuate all nonessential personnel. Small dry spills can be gathered and placed into containers for later disposal. Residue should be cleaned up using a high-efficiency particulate filter vacuum.

Waste Disposal: Follow all federal, state, and local regulations.

Handling and Storage: This material is overcoated with a clear, thin, plastic laminate to protect the paint layer. **DO NOT** remove this coating. Any damage to this coating may disperse dust particles containing lead into the air.

Store the paint films at a ambient room temperature away from direct sunlight.

SECTION VIII. SOURCE DATA/OTHER COMMENTS

Sources: MDL Information Systems, Inc., MSDS *Lead Chromate*, March 12, 1998.
MDL Information Systems, Inc., MSDS *Lead*, June 2,1999.

Disclaimer: Physical and chemical data contained in this MSDS are provided for use in assessing the hazardous nature of the material. The MSDS was prepared carefully, using current references; however, NIST does not certify the data on the MSDS. The certified values for this material are given only on the NIST Certificate of Analysis.